May-July 2023 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

NATIONAL WEATHER SERVICE

April 28, 2023
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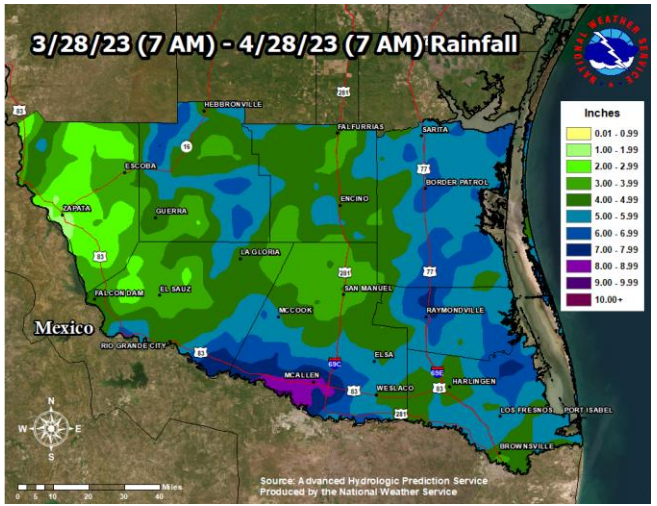
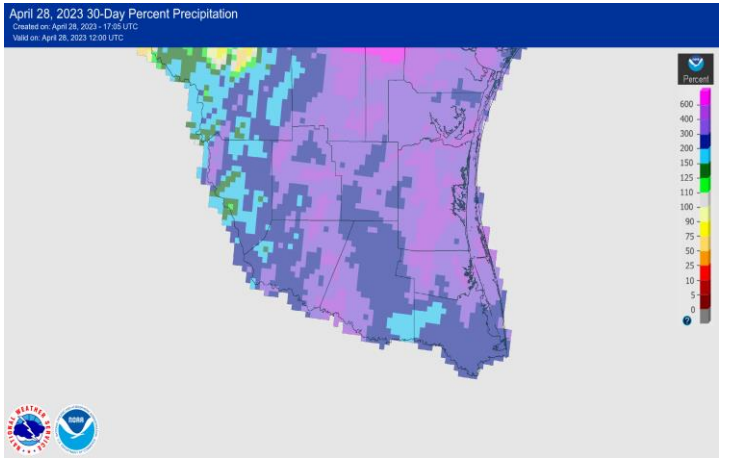
Hot Pattern Expected to Return; Additional Rains into May; Dryness by July?

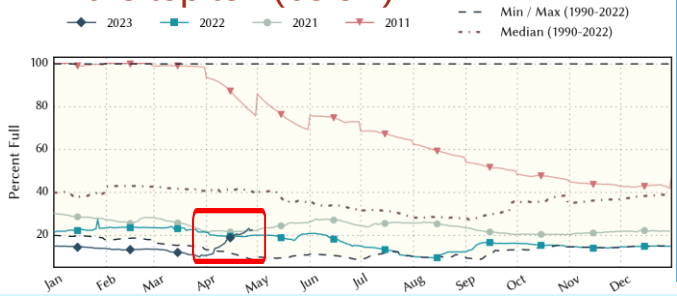
Above: Flooding in Weslaco during the mid to late morning of May 19th, 2021. Photos courtesy of Weslaco Emergency Management.

Since Late March…

- The rains finally arrived! 30-day totals were 300 to 400 percent of average for most of the region (lower right)
- Severe (Level 2) to Extreme (Level 3) Drought gradually improved with each April rain and storm event, with all but the ranchlands out of all drought categories
- Combination of releases out of Amistad Reservoir with a late April “flood wave” pushed Falcon Reservoir levels up by nearly 10 percent between the end of March and end of April…
- …but Amistad was at its lowest mid-spring level in 20 years.
- The rains, combined with periodic cool spells that followed, ended the wildfire spread threat for now.
- Yearly temperature averages fell but remained ranked among the top ten (below)







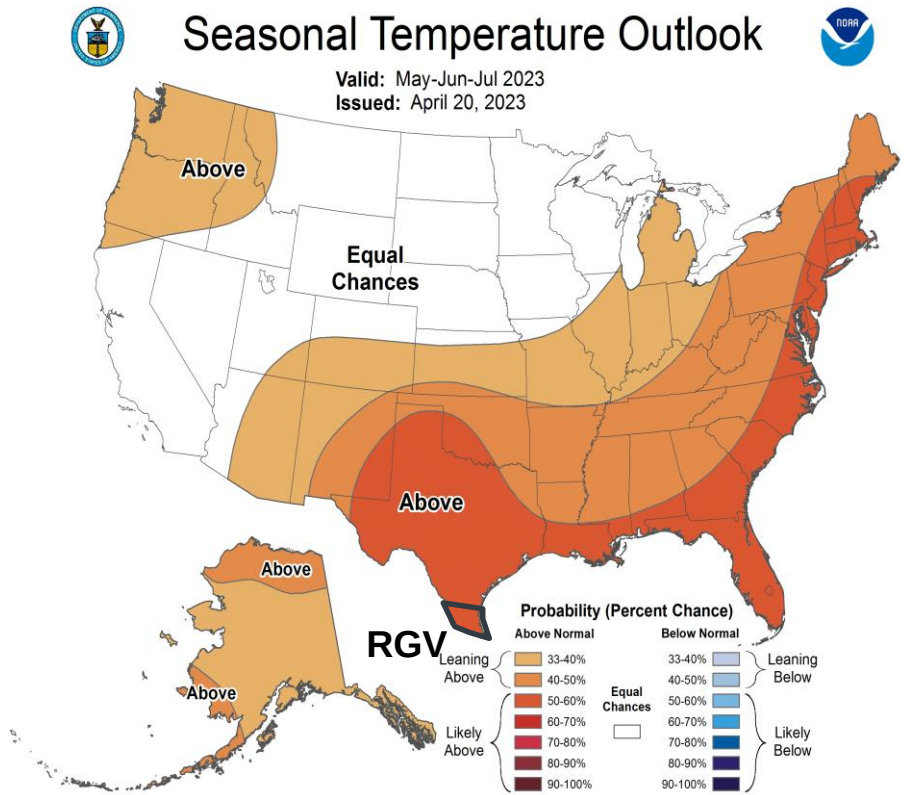
Maximum 117-Day Mean Avg Temperature for McAllen Area, TX (ThreadEx)

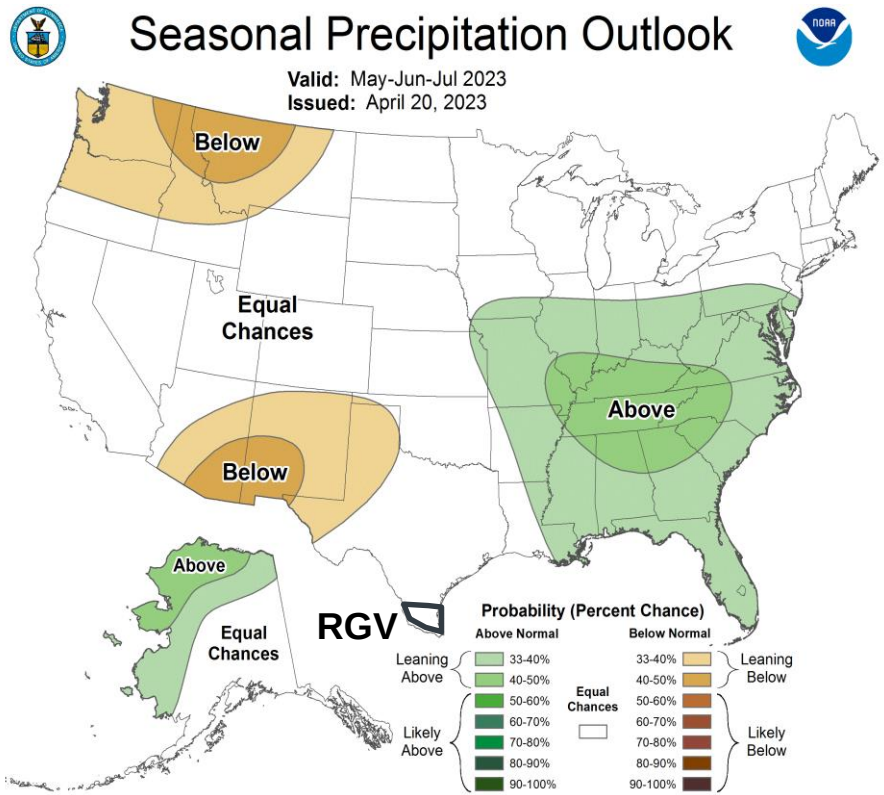
Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	74.8	2017-04-27	0
2	72.8	2020-04-27	0
3	72.6	2020-04-26	0
4	72.3	2000-04-27	0
5	72.2	2000-04-26	0
6	72.2	1999-04-27	0
7	71.4	2009-04-27	0
8	71.3	2023-04-27	0
9	71.3	2012-04-27	0
10	71.2	2016-04-27	0

Period of record: 1941-06-01 to 2023-04-27

Seasonal Forecast May-July 2023 - USA





Key Takeaways: May-July 2023

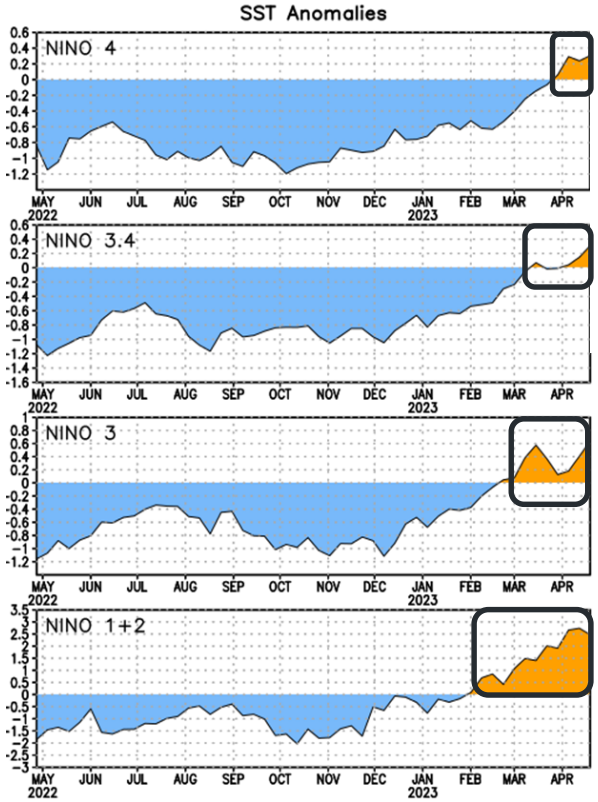
- ***Confidence is high*** on **hot weather to return and dominate** early to mid-summer but **medium** on the evolution of drought through the period
- Breakdown:
  - **Heat** is favored for the period, but there could be a few pleasant days in early May. **Heat stress** may become an issue if apparent temperatures reach above 110°F for long stretches in June and July.
  - May, and perhaps June, remains a "wild card" and explains the "equal chances" three-month rainfall probabilities for the season**. Organized thunderstorm "systems"** have occurred in many Mays and Junes; such systems would alleviate or potentially eliminate drought, but **also cause localized flash flooding** and **damaging wind/large hail**.
  - The middle and end of June have seen early-season tropical waves and cyclones in the western Gulf. In 2017, Tropical Storm Cindy brought record late-June heat to the Valley; a year later, torrential rains flooded up to $200 million in property damage. **Be ready for extremes**, especially in June.
  - Reservoir levels at Falcon nearly doubled between the end of March and end of April, but levels at Amistad dropped to levels not seen since spring 2002. Without additional minor flood "waves" down the Rio Grande south of Amistad, the combined low share may force **water conservation for some communities by June or July.**
  - Rapid wildfire growth will be in check through June, but a hot and dry July could require vigilance with ample new fuels which grew in April. Wildfire prevention actions may become necessary in July.

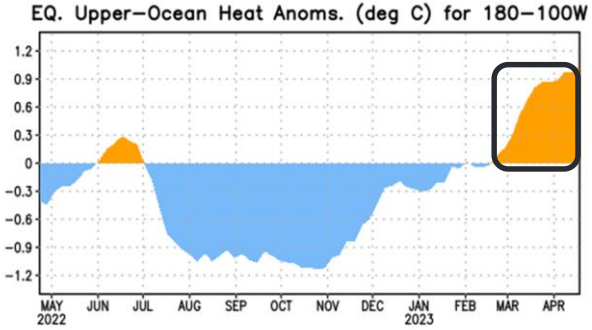
The "Why" of the Forecast: El Niño/Southern Oscillation (ENSO) neutral, headed to El Niño

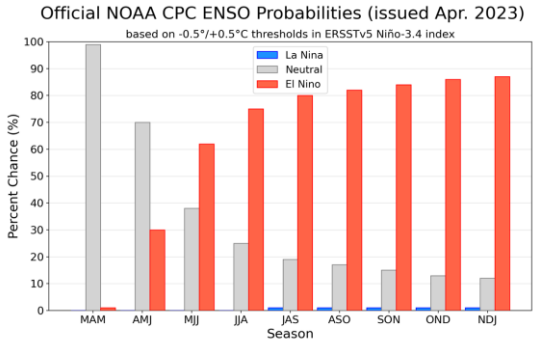
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1	-1.0	-0.9	-0.8	-0.9	-1.0	-1.0	-0.9	-0.8
2023	-0.7	-0.4										

- **Neutral ENSO conditions through May/early June** do not have much influence on background atmospheric patterns.
- The incoming El Niño combined with expected late spring- mid summer general atmospheric patterns and other "teleconnections" **leans toward hot and dry conditions by July**
- El Niño is likely by mid summer and through the peak of the Hurricane season. Summer El Niños can **enhance heat/drought** here, as was the case in 2009.

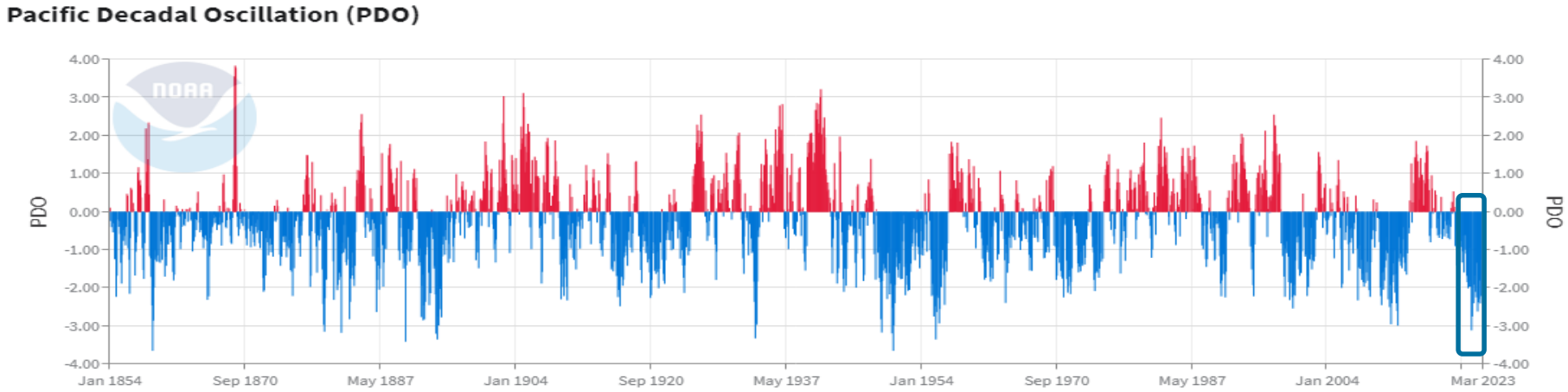
*Above right: Oceanic Niño Index. Values below -0.5 (light blue) indicate a 3-month La Niña episode. Current La Niña has reached 18 months as of Feb. 2023.







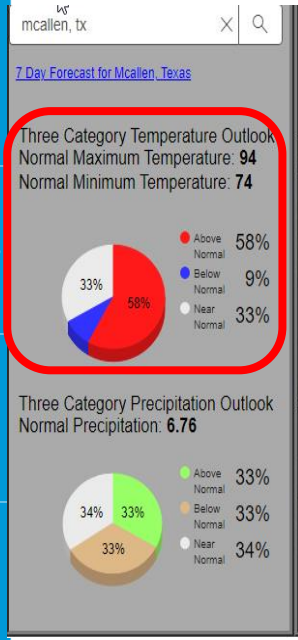
The “Why” of the Forecast: Pacific Decadal Oscillation (PDO) remains in Sharp Negative Phase

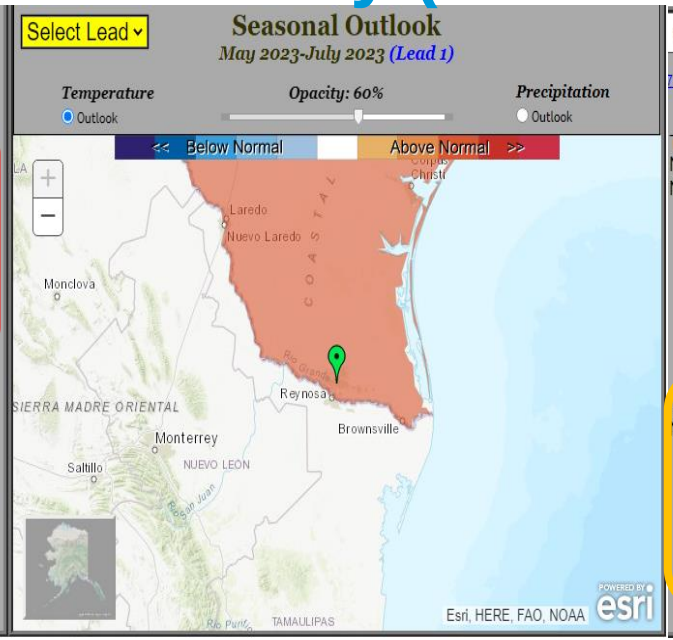


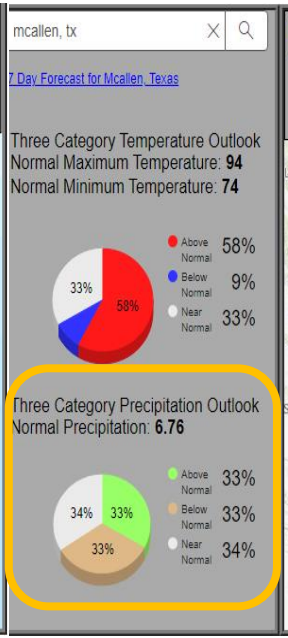
Source: https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat

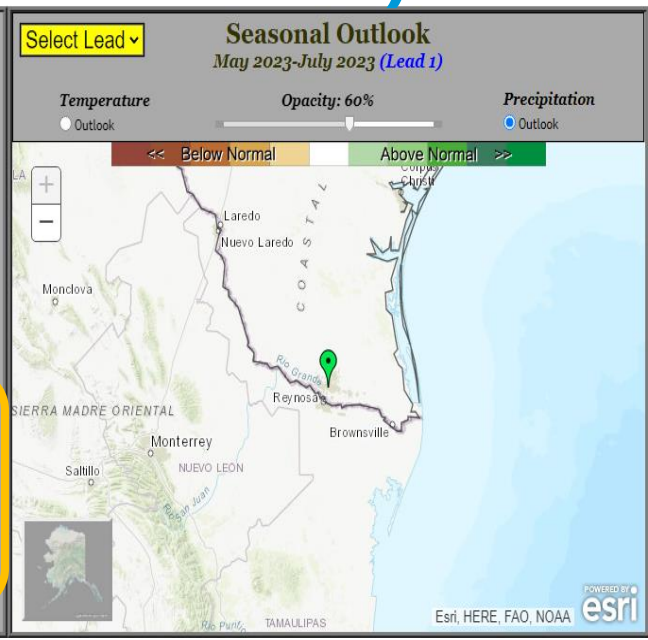
- The 2021-2023 prolonged and strong negative PDO remains similar to that of late 2010 through 2011. Combined with the persistent La Niña – also very similar to that from late 2010-2011 (though 2011 was a bit stronger), **confidence remains high on a hot May-July** overall.
- The PDO when combined with neutral ENSO suggests lower confidence for drier than average for the May--June 2023 period, but developing El Niño by late June increases confidence a on **hot/very hot and dry** second half of the period (**mid June through July**)

The May-July 2023 Outlook:
Rio Grande Valley (McAllen as Anchor Point)



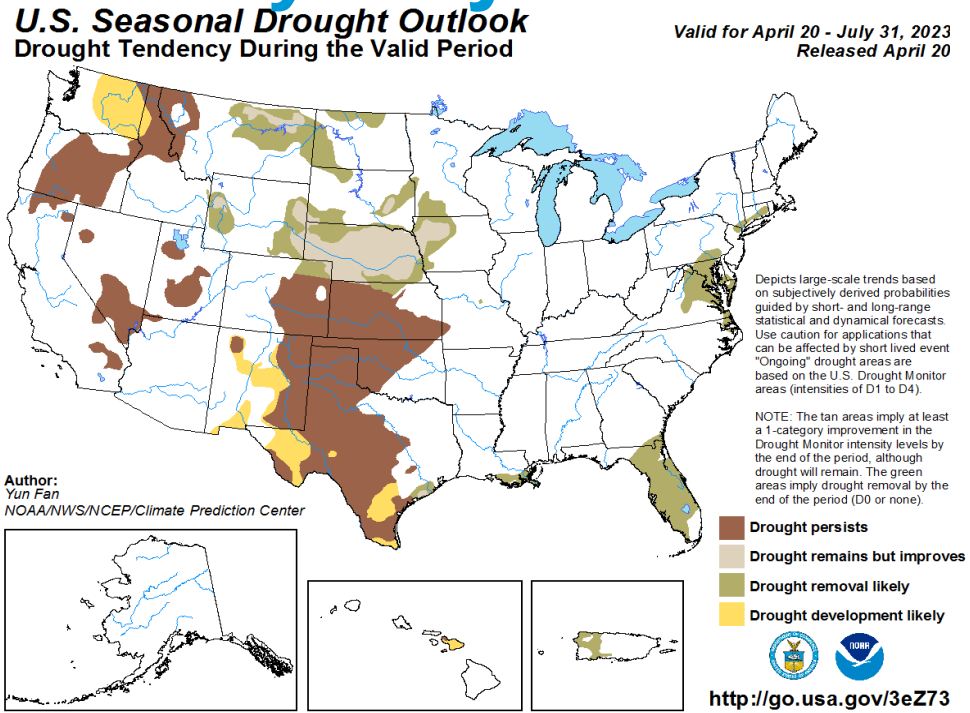


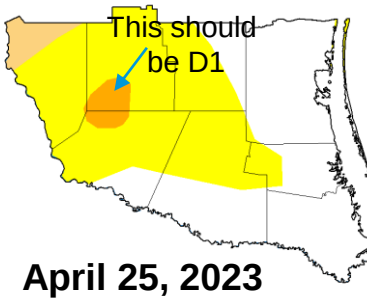




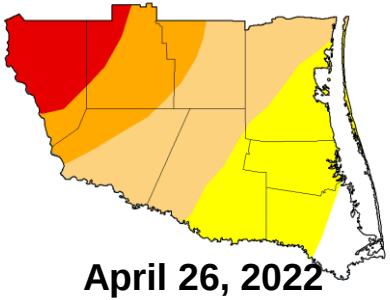
- Temperature: A **58 percent chance of above average**. **A 9 percent chance for below** average: RGV averages: Afternoon – 90 at the start of April, rising to 98 to 102 in July. Wake-up: Around 70 to start May, then 75 to 80 from late June through July
- Precipitation: Equal Chances of Above, Below, or Average. RGV averages: 7 to 8+ inches.

The May-July 2023“Droughtlook”





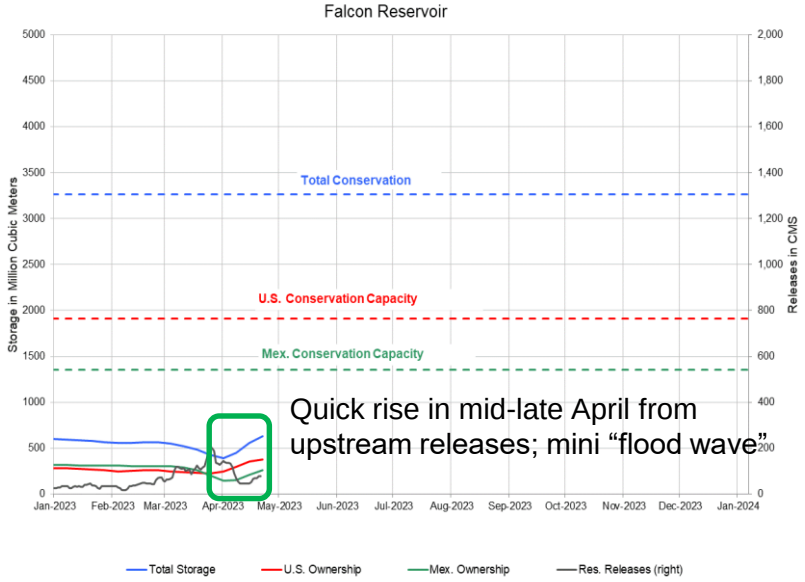
April 25, 2023

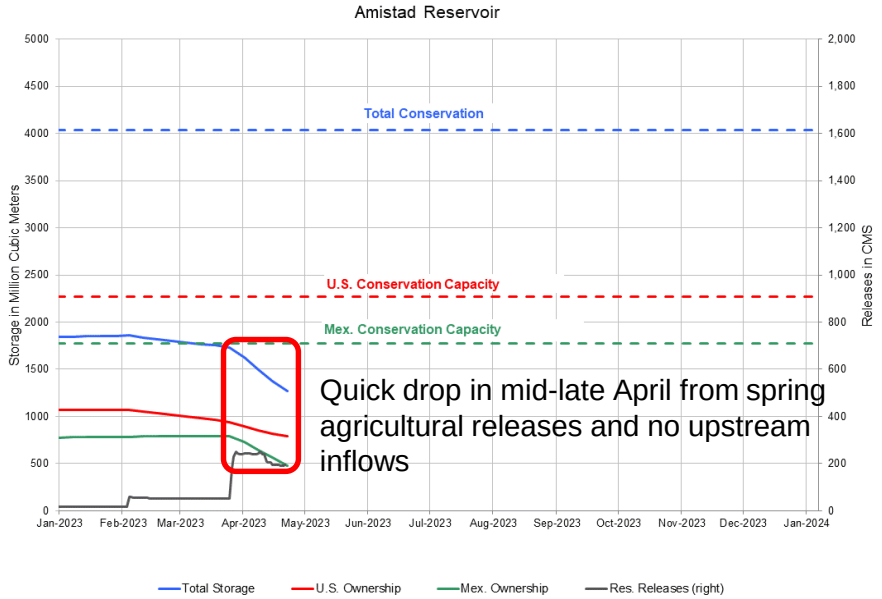


April 26, 2022

- **Drought was removed** for all but a couple of spots in Jim Hogg and northwest Zapata, as rainfall between 300 and 400+ percent of average in April, combined with cloudy and cool days that followed, improved soil moisture and the water table. The April 2023 rains were a much bigger help across the Brush County and Rio Grande Plains than the (lack of) rains a year earlier. The land turned green and grass and brush grew.
- **HOWEVER, a hot/dry June and especially July** would allow moderate to potentially severe drought to make a comeback, as shown.

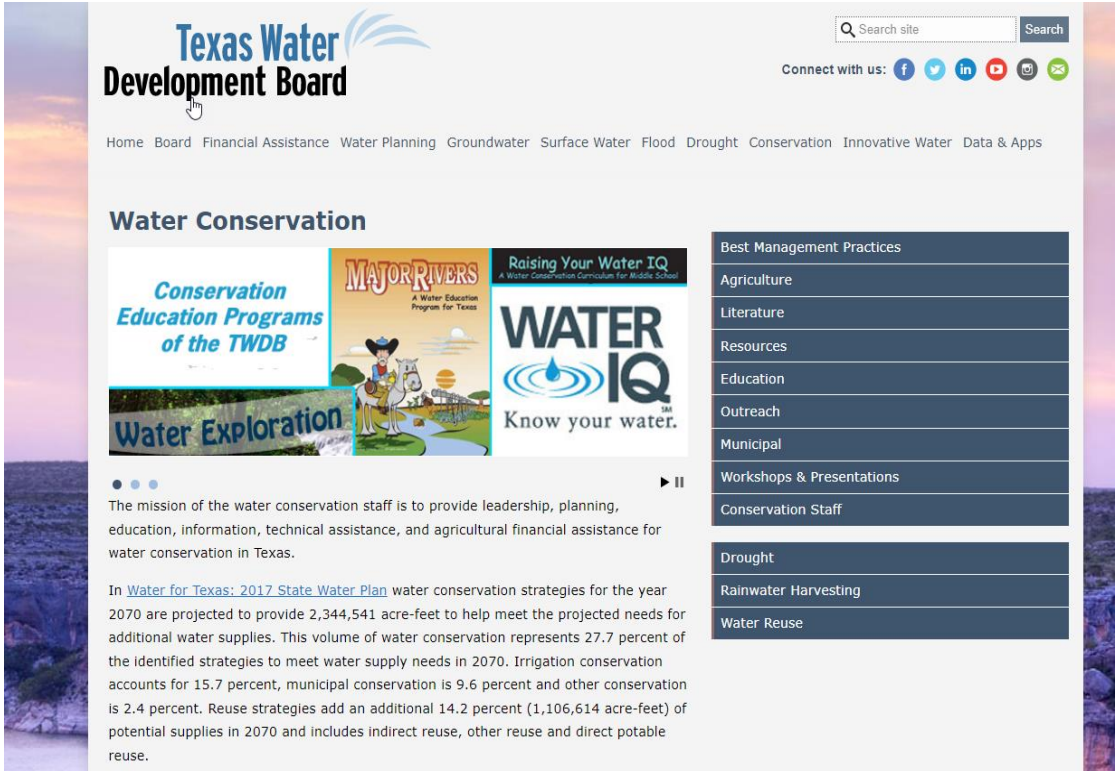
Falcon Rose, Amistad Fell in April Due to Agricultural Releases; similar trends into May before both drop in June/July





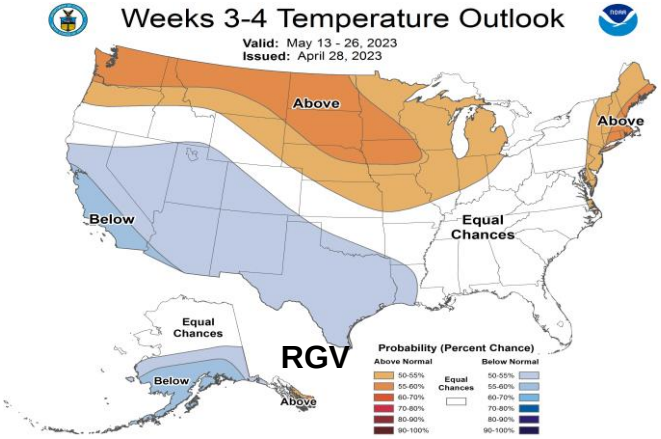
- Falcon fell to **11.37%** total capacity on March 31, 2023 before doubling back to 22.1 percent on April 28. Still, low/very low compared with long-term record.
- Amistad fell to **30.7%** total capacity on April 28th, the **lowest for the date in 20 years (2002).** The forecast is for additional drops through July.

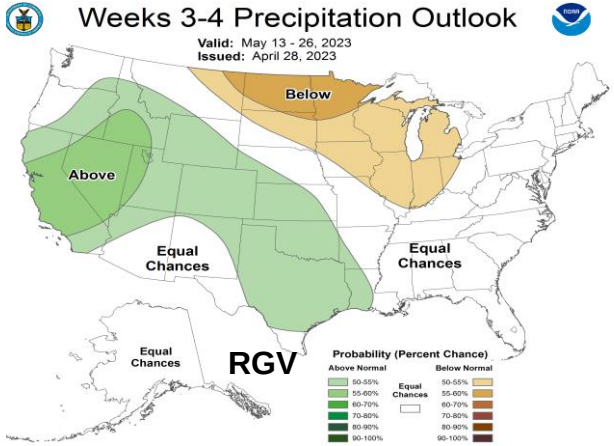
Water Conservation is (still) Key!

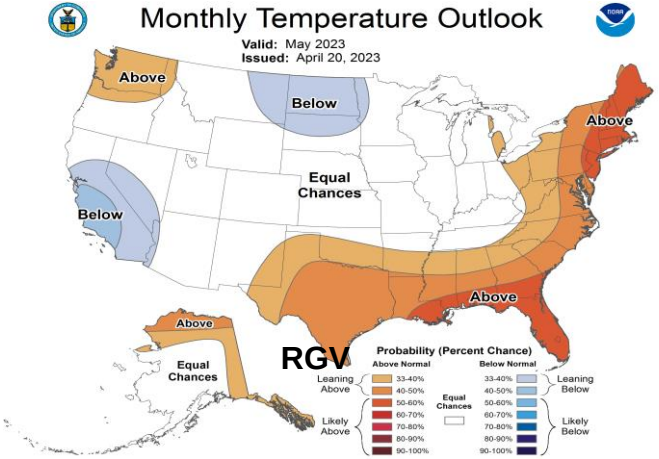


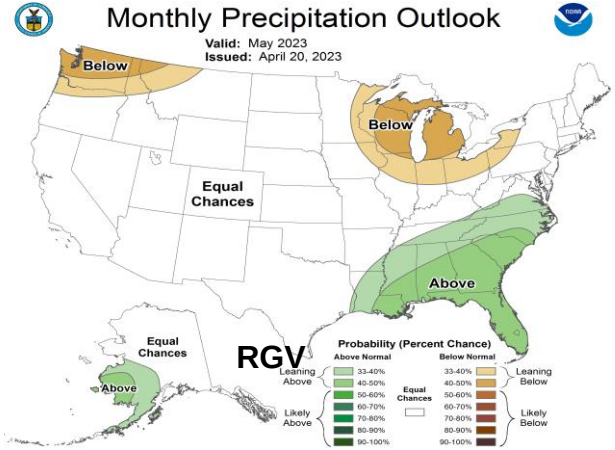
- With "Stage 2" Restrictions possible this summer, water conservation is critical.
- Learn more at the Texas Water Development Board's Conservation Page

May 2023: Confidence Medium on Heat; Low Rainfall



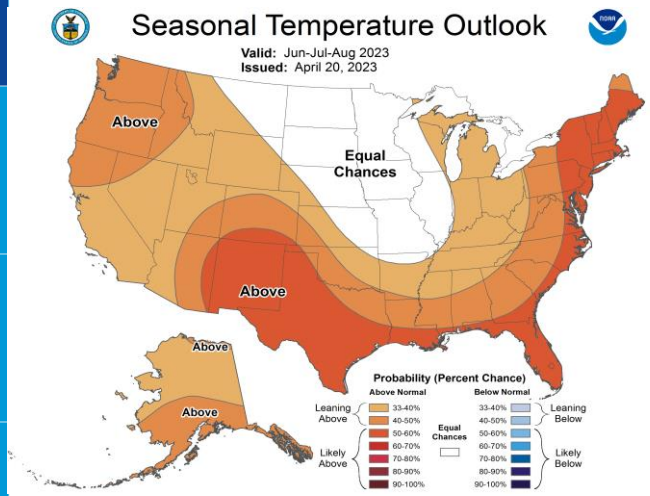


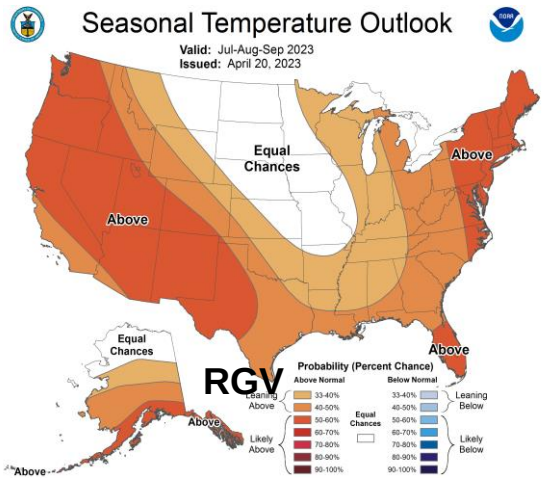


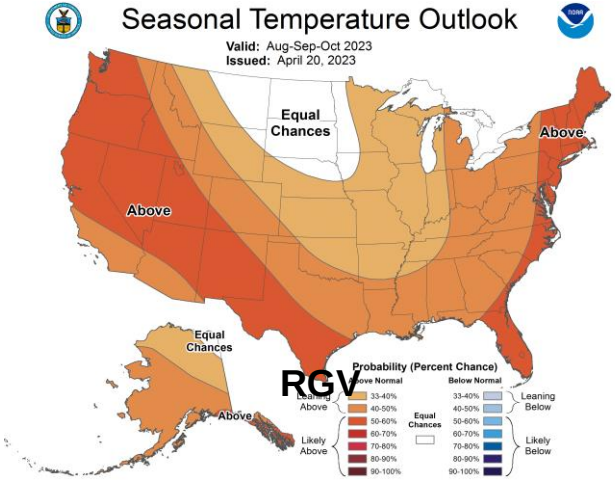


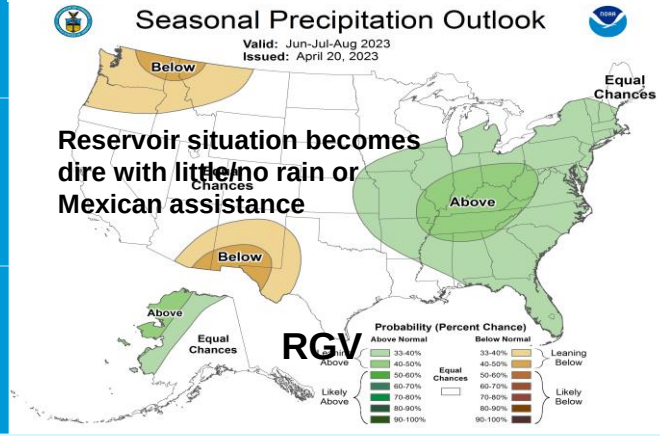
- **Bottom Line: Warm to hot weather is expected**. The lack of a subtropical of "La Canícula" ridge could keep temperatures near or slightly below average (90-95 afternoon; 70-75 morning)
- Confidence in a hot and dry May has **faded to low to medium**. An active "jet stream" pattern could favor enough wet periods to push the monthly average above the modestly wet (2 to 2.5 inches) number.
- ***Where*** the heaviest rain falls across the southernand southwestern U.S. **remains highly uncertain and dependent of the location of upper level systems** and their ability to pull in increasingly warm/humid atmospheric conditions

Late Summer/early Autumn 2023: Hot with "Wild Cards" on Rainfall…still.

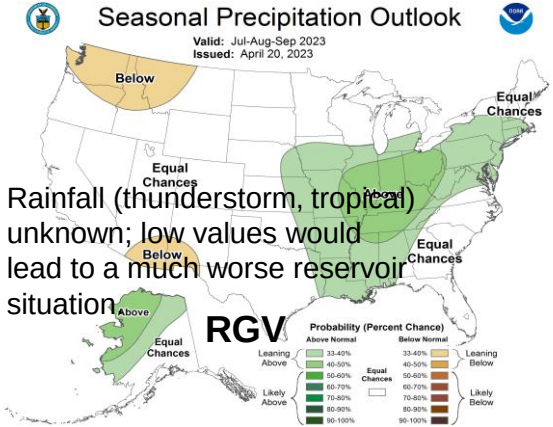




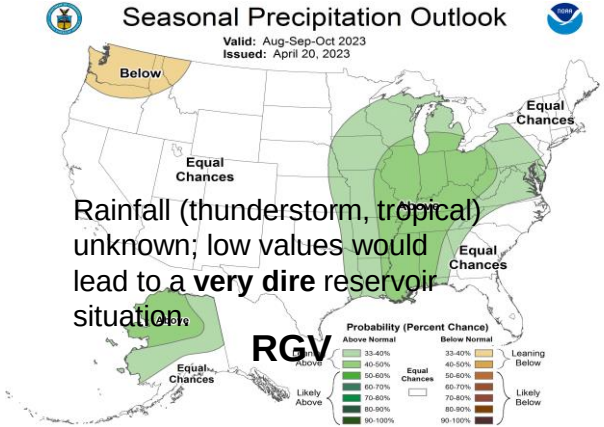




Reservoir situation becomes dire with little/no rain or Mexican assistance



Rainfall (thunderstorm, tropical) unknown; low values would lead to a much worse reservoir situation



Rainfall (thunderstorm, tropical) unknown; low values would lead to a **very dire** reservoir situation.

Bottom Lines

- Water storage levels at **Amistad** continued a steady decline through April, while releases and a "flood wave" aided **Falcon.** Without additional rain or inflows from Mexican reservoirs serving the Lower Rio Grande watershed, **combined share of water in Amistad and Falcon may still reach Stage 2 triggers in late May or later.** Water **conservation, smart irrigation , and rainwater harvesting** are important actions to consider even before local water supplies are impacted.
- Local rain could be sufficient for local **urban/flash floods**, and be joined by **damaging winds large hail and excessive lightning** in thunderstorm "clusters" from May until early to mid June, following late April's lead. Prepare for the potential with these **safety tips**.
- Regrowth of grasses and brush in April, and perhaps May into early June, will initially keep wildfire spread potential down. A dry and very hot late June/July could **rapidly dry out these fuels and promote some wildfire spread** on breezy to windy and dry days by late July
- **Drought and dryness** should remain in check through May and early June with the potential for more quenching thunderstorm rains, but a hotter and rain-free July could return locally moderate to potentially severe drought by late summer.